AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A corneal topography analysis system comprising:

an input unit for inputting corneal shape data of an eye to be examined;

an analysis unit that determines plural indexes characterizing topography of the cornea (corneal topography) based on the input corneal shape data, the analysis unit further judges corneal topography of the eye, including keratoconus (KC), keratoconus suspect (KCS)[[,]] and pellucid marginal degeneration (PMD), using the determined indexes and a neural network; and

a display unit that displays a judging result of the corneal topography by the analysis unit,

wherein the neural network is trained so as to input corneal topography having been clinically judged in advance, including keratoconus, keratoconus suspect and pellucid marginal degeneration, ~~determines~~ determine weighted coefficients for each corneal topography and output the judging result of the corneal topography.

Claims 2-10. (canceled).

11. (currently amended): A corneal topography analysis system comprising:

an input unit for inputting corneal shape data of an eye to be examined;

an analysis unit that determines plural indexes characterizing topography of the cornea (corneal topography) based on the input corneal shape data, the analysis unit further judges

corneal topography of the eye, including keratoconus (KC), keratoconus suspect (KCS)[[,]] and pellucid marginal degeneration (PMD), using the determined indexes and a neural network; and

a display unit that displays a judging result of the corneal topography by the analysis unit,

wherein said analysis unit converts the corneal shape data entered ~~from~~ by the input unit into data in the form of a denser first data matrix by interpolation, removes high-frequency components from the converted data by frequency analysis, and converts ~~obtained~~ the resulting data into ~~corneal curvature~~ data in the form of a given second data matrix.

12. (currently amended): The corneal topography analysis system of claim 11, wherein said analysis unit removes the high-frequency components from the converted data by fast Fourier transform (FFT) and smoothes the ~~corneal curvature~~ resulting data by inverse FFT.

13. (currently amended): The corneal topography analysis system of claim 11, wherein the corneal curvature data entered by the input unit is data in the form of a polar coordinate data matrix, and wherein said analysis unit converts the corneal ~~curvature~~ shape data into data in the form of an orthogonal coordinate data matrix as the first data matrix, removes the high-frequency components from the converted data by ~~two-dimensional~~ fast Fourier transform (FFT) ~~FFT from the data~~, smoothes the ~~obtained corneal curvature~~ resulting data by inverse FFT, and ~~then~~ converts the smoothed data into data in the form of a polar coordinate data matrix as ~~said~~ the second data matrix.

Claims 14-17. (canceled).

18. (currently amended): A corneal topography analysis system comprising:

an input unit that enters corneal shape data of an eye to be examined; and

an analysis unit that converts the corneal shape data into data in the form of an orthogonal coordinate data matrix as a denser first data matrix by interpolation, removes high-frequency components from the converted data by fast Fourier transform (FFT)~~FFT from the data~~, smoothes the ~~obtained corneal shaped~~ resulting data by inverse FFT, converts the smoothed data into data in the form of a polar coordinate data matrix as a given second data matrix, and judges corneal topography of the eye based on the converted data.

Claims 19-22. (canceled).

23. (currently amended): A method of analyzing corneal topography of a cornea comprising the steps of:

obtaining corneal shape data of an eye to be examined;

determining plural indexes characterizing topography of the cornea (corneal topography) based on the obtained corneal shape data; and

judging corneal topography of the eye, including keratoconus (KC), keratoconus suspect (KCS)[[,]] and pellucid marginal degeneration (PMD), using the determined indexes and a neural network; and

displaying a judging result of the corneal topography by the analysis unit,

wherein the neural network is trained so as to input corneal topography having been clinically judged in advance, including keratoconus, keratoconus suspect and pellucid marginal

degeneration, ~~determines~~ determine weighted coefficients for each corneal topography and output the judging result of the corneal topography.

Claim 24. (canceled).

25. (currently amended): A method of analyzing corneal topography of a cornea comprising the steps of:

obtaining corneal shape data of an eye to be examined;

converting the ~~entered~~ obtained corneal shape data into data in the form of an orthogonal coordinate data matrix as a denser first data matrix by interpolation;

removing high-frequency components from ~~resulting~~ the converted data by fast Fourier transform ~~FFT~~ (FFT);

smoothing the ~~obtained corneal shaped~~ resulting data by inverse FFT;

converting the smoothed data into data in the form of a polar coordinate data matrix as a given second data matrix; and

judging corneal topography based on the converted data.

26. (currently amended): The corneal topography analysis system according to claim 1, wherein

the corneal topography to be judged by the analysis unit further includes corneal subjected to myopic refractive surgery (MRS) and corneal subjected to hyperopic refractive surgery (HRS), and

the neural network is trained so as to input corneal topography having been clinically judged in advance, including corneal subjected to myopic refractive surgery and corneal subjected to hyperopic refractive surgery, ~~determines~~ determine weighted coefficients for each corneal topography and output the judging result of the corneal topography.

27. (currently amended): The corneal topography analysis system according to claim 1, wherein

the corneal topography to be judged by the analysis unit further includes at least one of normal cornea (NRM), corneal astigmatism (AST) and penetrating keratoplasty (PKP), and

the neural network is trained so as to input corneal topography having been clinically judged in advance, including at least one of normal cornea (NRM), corneal astigmatism (AST) and penetrating keratoplasty (PKP), ~~determines~~ determine weighted coefficients for each corneal topography and output the judging result of the corneal topography.

28. (previously presented): The corneal topography analysis system according to claim 1, wherein the plural indexes to be determined by the analysis unit includes at least one of minimum keratometry value (MINK), average corneal power (ACP) and corneal eccentricity index (CEI).

29. (previously presented): The corneal topography analysis system according to claim 1, wherein the plural indexes to be determined by the analysis unit includes minimum keratometry value (MINK), surface regularity index (SRI), area compensated surface regularity index (SRC), opposite sector index (OSI), differential sector index (DSI), center/surround index

(CSI), keratoconus prediction index (KPI), simulated keratometric cylinder (CYL), irregular astigmatism index (IAI), average corneal power (ACP), analyzed area (IAA), corneal eccentricity index (CEI), keratoconus index (KCI), coefficient of variation of corneal power (CVP), standard deviation of corneal power (SDP) and surface asymmetry index (SAI).